

REMARKS/ARGUMENTS

Claims 21-51 are pending in this application. By this Amendment, claims 21, 23, 25, 26, 37, 46 and 51 are amended. Support for the claims can be found throughout the specification, including the original claims and the drawings. Withdrawal of the rejections in view of the above amendments and the following remarks is respectfully requested.

I. Rejection Under 35 U.S.C. §112, First Paragraph

The Office Action rejects claims 25, 26 and 46 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. It is respectfully submitted that the amendments to claims 25, 26 and 46 are responsive to the Examiner's comments, and that claims 25, 26 and 46 meet the requirements of 35 U.S.C. §112, first paragraph. Accordingly, the rejection should be withdrawn.

II. Page 7, Item 8 of the Office Action

Item 8 of the Office Action points out antecedent basis issues in claims 49 and 51. It is respectfully submitted that the amendment to claim 51 submitted herewith is responsive to the Examiner's comments, and resolves the antecedent basis issues.

III. Rejection Under 35 U.S.C. §102(b)

The Office Action rejects claims 37-41, 43-46 and 51 under 35 U.S.C. §102(b) over Japanese Patent No. 2000-125600 to Abe et al. (hereinafter "Abe"). This rejection is respectfully traversed.

Independent claim 37 is directed to a brake resistance assembly, including a case which defines an interior space, and first and second terminals at least partially housed within the interior space defined by the case and coupled to winding coils of the motor by a motor drive circuit. The brake resistance assembly also includes first and second resistance coils coupled to the first and second terminals, wherein the first and second resistance coils are configured to convert electric energy generated by continued rotation of the motor due to inertia after the motor is turned off into thermal energy. Abe neither discloses nor suggests the features of independent claim 37, or the claimed combination of features.

Abe discloses a DC electromagnetic brake used with an electric motor M. The type of brake disclosed by Abe is used simply to engage or release a physical hold on the motor M to allow or prevent the motor M from turning. Abe neither discloses nor suggests that this disclosed electromagnetic brake and/or the coils 17a and 17b, are in any way capable of dissipating electric energy when the motor M is turned off. Rather, Abe's brake simply re-engages the mechanical motor brake to prevent the motor M from turning when power is cut off from the motor M. Thus, it is respectfully submitted that the electromagnetic brake disclosed by Abe is not properly compared, either in structure or in function, to the brake release assembly recited in independent claim 37.

However, even if Abe's electromagnetic brake is improperly compared to the claimed brake resistance assembly, Abe still neither discloses nor suggests the features of independent claim 37, or the claimed combination of features. More specifically, when power is first applied

to the motor M, the circuitry in Abe's device applies a relatively high initial current to a first coil 17a of an electromagnet 16. This initial current is large enough to generate an attractive force to release a mechanical motor brake and allow the motor M to turn. Once the motor M achieves a desired rotational speed, the circuitry applies a second, reduced current to both the first coil 17a and a second coil 17b of the electromagnet 16. This reduced current generates an electromagnetic force that is sufficient to maintain the brake in the released position, allowing the motor M to continue to turn. When current is removed completely, there is no magnetic force generated, and the mechanical motor brake returns to its at rest, initial position engaged/locked on the motor M, thus immediately restricting any additional rotation of the motor M once the brake is applied.

The brake resistance assembly recited in independent claim 37 includes first and second terminals coupled to winding coils of a motor of a washing machine by a motor drive circuit. First and second resistance coils are coupled to the first and second terminals. The first and second resistance coils convert electric energy generated by the motor's continued rotation due to inertia after the motor is turned off. Abe neither discloses nor suggests that the coils 17a and 17b are coupled to any type of winding coils by the motor M, nor that there is any residual energy/inertia that would allow the motor M to continue to turn. Rather, in Abe's device, the motor M is necessarily restricted from turning once the brake is applied. Thus the coils 17a, 17b do not convert electric energy generated by continued rotation of the motor due to inertia after the motor is turned off into thermal energy, as do the claimed first and second resistance coils.

Still further, as would be well understood by one of ordinary skill, in the claimed brake resistance assembly, the motor continues to rotate for some amount of time after power is cut off, due to inertia, and generates a counter-electromotive force. The claimed first and second coils convert this energy (generated by the motor's continued rotation) into thermal energy. In contrast, the coils 17a and 17b disclosed by Abe are only capable of moving the brake to a position which would completely stop any rotation of the motor. Thus, in Abe's system, there is no means by which the motor would continue to rotate, and thus necessarily no means by which energy generated by such continued rotation could be converted as claimed.

Additionally, the Office Action asserts that it is unclear how the "configured" coils differ in structure with Abe's coils 17a and 17b. Regarding the use of functional language in the claims, MPEP 2173.05(g) states:

"[A] functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. A functional limitation is often used in association with an element, ingredient or step of a process to define a particular capability or purpose that is served by the recited element, ingredient or step."

MPEP 1273.05(g) further states:

"[I]n a claim that was directed to a kit of component parts capable of being assembled, the Court held that limitations such as "members adapted to be positioned" and "portions...being resiliently dilatable whereby said housing may be slidably positioned" serve to precisely define present structural attributes of interrelated component parts of the claimed assembly. *In re Venezia*, 530 F.2d 956, 189 USPQ 149 (CCPA 1976)."

As set forth above, and in keeping with the guidance provided in MPEP 2173.05(g), it is respectfully submitted that the capability of the claimed first and second resistance coils to convert electric energy generated by the continued rotation of the motor after the motor is turned off into thermal energy so as to dissipate the electric energy serves to define certain structural attributes that enable the coils to dissipate the energy as claimed. Thus, if the first and second coils are considered in this light, then it would be well understood by one of ordinary skill in the art that the claimed first and second coils have certain structural characteristics necessary to convert and dissipate energy in this manner, whereas the coils 17a and 17b disclosed by Abe do not. Further, adding this capability to these simple coils 17a and 17b would unnecessarily complicate the structure and function of Abe's design, and possibly render Abe's device inoperative for its originally intended purpose.

For at least these reasons, it is respectfully submitted that Abe neither discloses nor suggests at least first and second resistance coils as recited in independent claim 37. Accordingly, it is respectfully submitted that independent claim 37 is not anticipated by Abe, and thus the rejection of independent claim 37 under 35 U.S.C. §102(b) over Abe should be withdrawn. Dependent claims 38-41, 43-46 and 51 are allowable at least for the reasons set forth above with respect to independent claim 37, from which they depend, as well as for their added features.

IV. Rejections Under 35 U.S.C. 35 U.S.C. §103(a)

The Office Action rejects claims 21-30 under 35 U.S.C. §103(a) over U.S. Patent No. 4,556,827 to Erdman et al. (hereinafter “Erdman”) in view of Abe. This rejection is respectfully traversed.

Independent claim 21 is directed to a washing machine which includes a brake resistance assembly. Independent claim 21 recites that the brake resistance assembly includes a case which defines an interior space, and first and second terminals at least partially housed within the interior space defined by the case, wherein the first and second terminals are coupled to winding coils of the motor via a motor drive circuit. The brake resistance assembly also includes first and second resistance coils configured to convert electric energy generated by continued rotation of the motor due to inertia after the motor is turned off into thermal energy. Erdman neither discloses nor suggests the features of independent claim 21, or the claimed combination of features.

Erdman discloses a washing machine 8 including a spin tub 10 and agitator 12 driven by an electronically commutated motor (ECM) 30. Operation of the ECM 30 is controlled by a panel switch arrangement that includes numerous switching components. Amongst these switching components is a braking relay 130. The braking relay 130 (compared in the Office Action to the claimed brake resistance assembly) controls power to a set of stator windings based on a selected operating mode of the machine 8 and corresponding selective actuation of the switches 128 (see column 38, lines 28-39 of Erdman). It appears, based on the remarks in

the Office Action, that Erdman is applied to teach a cabinet, drum and motor of a washing machine, and the use of a braking relay 130 with a washing machine 8. However, Erdman makes no specific disclosure as to the structure or composition of the brake relay 130. Thus, Erdman neither discloses nor suggests a brake resistance assembly as specifically recited in independent claim 21.

Abe was applied in combination with Erdman in the Office Action, relying on Abe to allegedly teach the features of the claimed brake resistance assembly and thus overcome the deficiencies of Erdman. However, as set forth above, Abe neither discloses nor suggests each of the features of the brake resistance assembly as recited in independent claim 21, and thus fails to overcome the deficiencies of Erdman.

It is respectfully submitted that even the combination of Erdman and Abe neither discloses nor suggests each of the features of independent claim 21. Accordingly, it is respectfully submitted that independent claim 21 is allowable over the applied combination, and thus the rejection of independent claim 21 under 35 U.S.C. §103(a) over Erdman and Abe should be withdrawn. Dependent claims 22-30 are allowable at least for the reasons set forth above with respect to independent claim 21, from which they depend, as well as for their added features.

The Office Action rejects claim 31 under 35 U.S.C. §103(a) over Erdman and Abe in view of U.S. Patent No. 3,943,391 to Fehr (hereinafter “Fehr”), rejects claim 32 under 35 U.S.C. §103(a) over Erdman and Abe in view of U.S. Patent No. 4,085,395 to Billerbeck et al.

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(hereinafter "Billerbeck"), and rejects claims 33-36 under 35 U.S.C. §103(a) over Erdman and Abe in view of U.S. Patent No. 5,409,996 to Shinohara et al. (hereinafter "Shinohara"). These rejections are respectfully traversed.

Dependent claims 31-36 are allowable over Erdman and Abe at least for the reasons set forth above with respect to independent claim 21, from which they depend, as well as for their added features. Further, Fehr is merely cited as allegedly teaching the use of Aluminum and Copper in coil material, Billerbeck is merely cited as allegedly teaching contouring in a casing, and Shinohara is merely cited as allegedly teaching the use of a heat conductive molding material. Thus, Fehr, Billerbeck and Shinohara each fail to overcome the deficiencies of Erdman and Abe. Accordingly, it is respectfully submitted that claims 31-36 are allowable over the respective applied combinations, and thus the rejections should be withdrawn.

The Office Action rejects claim 42 under 35 U.S.C. §103(a) over Abe in view of Fehr, rejects claims 47 and 48 under 35 U.S.C. §103(a) over Abe in view of Billerbeck, and rejects claims 49 and 50 under 35 U.S.C. §103(a) over Abe in view of Shinohara. These rejections are respectfully traversed.

Dependent claims 42 and 47-50 are allowable over Abe at least for the reasons set forth above with respect to independent claim 37, from which they depend, as well as for their added features. Further, as set forth above, Fehr, Billerbeck and Shinohara each fail to overcome the deficiencies of Abe. Accordingly, it is respectfully submitted that claims 42 and 47-50 are allowable over the respective applied combinations, and thus the rejection should be withdrawn.

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Docket No. **K-0585**

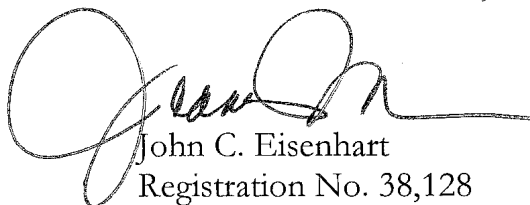
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V. Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned **Joanna K. Mason**, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
KED & ASSOCIATES, LLP

A handwritten signature in black ink, appearing to read "John C. Eisenhart", is written over the typed name and registration number.

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